MORPHOLOGY OF SPIRONEMA FRAGRANS, LINDL.

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About eight years ago a friend gave me a small potted plant—a monocot with an attractive whorl of dark green leaves resembling *Dracaena*. This grew into a high plant which began to lean and sprawl with its heavy crown of long leaves; next, it produced from the lower nodes long runner-like branches which quickly rooted in the soil in the green-house bench in which it's pot had been placed. These off-sets I gave to friends as interesting house-plants. As the sprawling parent

FIG. 1. Three year old plant of *Spironema fragrans* in early stage of blooming.

plant became more awkward and ungainly with its numerous progeny around it forming a sort of jungle, I would discard the old plants and raise new ones as mere foliage plants, since it never bloomed. Without any flowers I could not identify it. I kept it as rampant but barren tropical stranger in our green-house collection.

Finally in the spring of 1948 an old plant which I had kept as an ungainly relic became mature enough to bloom (Fig. 1). In February it suddenly sent up a long naked wand-like stem which eventually developed lateral shoots. These ulti-

mately produced dense clusters of small deliciously fragrant white flowers (Fig. 2) that filled the green-house with their perfume. As I had no keys for tropical monocots which were not common in horticulture, I made sketches of the plant and its flowers and sent them to the Bronx Botanical Garden in New York. The assistant curator, Mr. Richard Howard, sent me its name—*Spironema fragrans*.

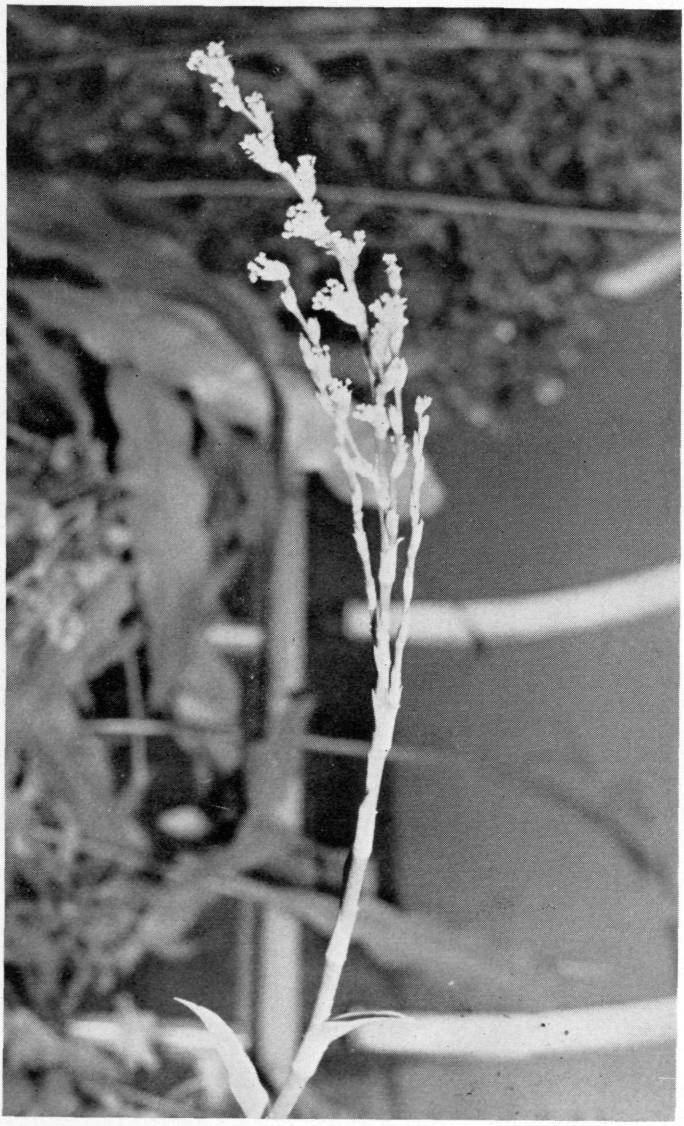

FIG. 2. Inflorescence of *Spironema fragrans* at mature stage of bloom.

Its nomenclature has gone through numerous vicissitudes. Its earliest generic name was *Callisia* given by Linnaeus (1) in 1758. A specimen had apparently been sent to Linnaeus at Upsala, Sweden, by his former student, Pehr Löfling (2), whom it will be recalled was designated by Linnaeus as his best loved pupil. Löfling

had in later years become botanist to the Spanish Government in Madrid. In this capacity he went on a botanical exploration trip to South America where he died.

In his collections he sent back the plant which was named *Callisia* by his old teacher, Linnaeus.

In 1763 the genus was renamed *Hapolanthus* by the Austrian Botanist, Nicolaus Jacquin (3) and in 1840 the English collector and student of American plants, John Lindley (4) christened it *Spironema*. This was its valid name until 1903 when John K. Small (5) of the Bronx Botanical Garden put it in the genus *Tradescantella*.

By this one can surmise that the plant is a member of the Commelinaceae in the Division Tradescantiae.

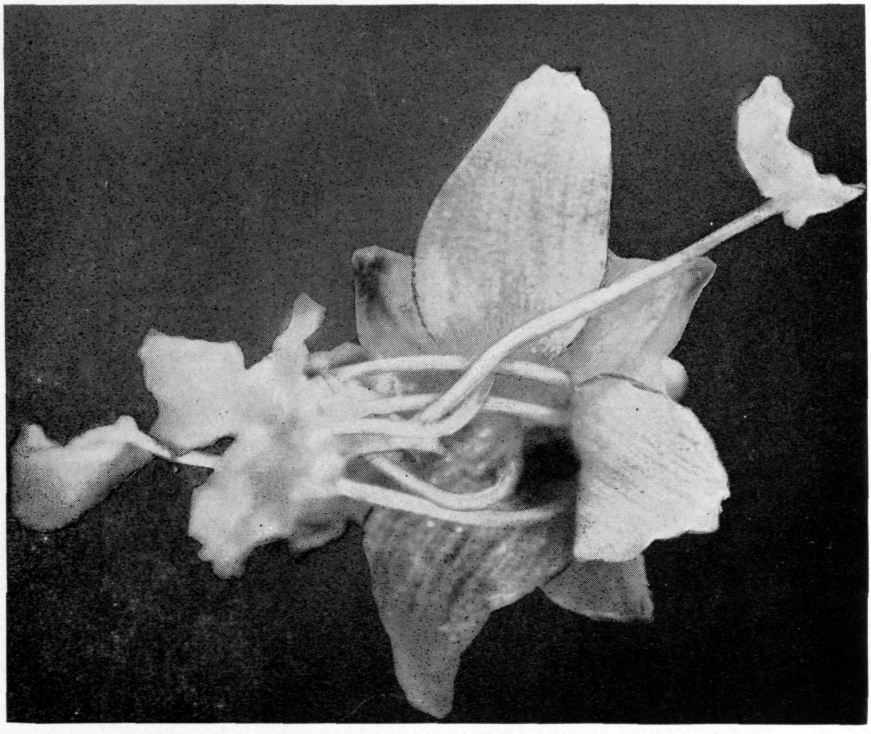

FIG. 3. Magnified flower of *Spironema fragrans* × 20.

In 1942, Robert E. Woodson (6) of the Missouri Botanical Garden and who is at present writing a *Flora of Panama* (7) contributed an article to the Annals of the Missouri Botanical Garden entitled "A Commentary on the North American Genera of Commelinaceae." He described the plant under the name, *Callisia fragrans* (Lindl.) Woodson *Comb. nov.*

The plant's relationship to the genus *Callisia* is not very patent. The older authors describe the genus as composed of "small prostrate running herbs with umbelliform, few flowered, inflorescences." Woodson says of *C. fragrans*, "aside from its gigantic size the relationship of this species to the small creeping plants of *Callisia* should be sufficiently clear."

But in spite of Woodson's statement it is not *sufficiently clear* that it should be included in *Callisia* as originally named by Linnaeus. The more logical nomen-

clature would therefore be that favored by Engler and Prantl (8) and the Bronx Botanical Garden to retain Lindley's (1840) name of *Spironema* since in its habit it is strikingly different from the creeping species of *Callisia*.

The flowers are held aloft in spike-like wands 3 to 4 feet tall (Fig. 2). They are borne in compact globose clusters in the axils of tiny bracts and like most of its relatives in this family are ephemeral. They open about 9:30 in the morning and all are shriveled and finished by 3:30 P. M. The blooming is also sporadic. On March 20 of the year 1949, all of 5 large old plants burst into bloom simultaneously for one day. Then no flowers opened until March 29, then a bloomless period until April 5, and again no flowers until April 10. These sudden and irregular

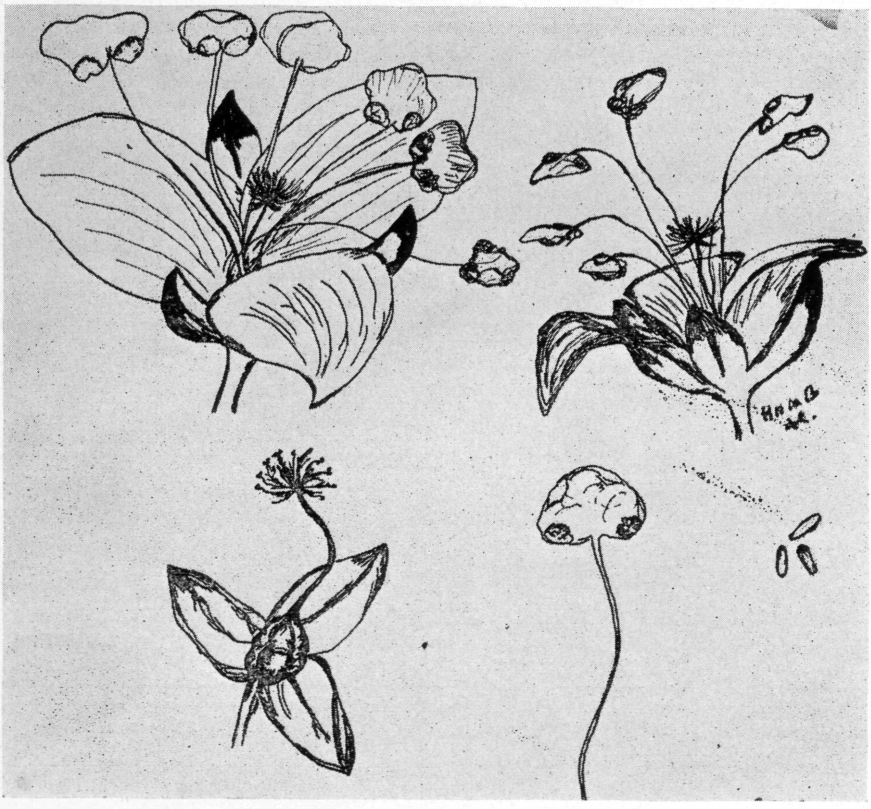

FIG. 4. Floral parts of *Spironema fragrans*. Drawings by H. H. M. Bowman.

spurts of bloom were not apparently due to the quantity of light nor the temperature, since the latter was uniform in the green-house and some of the blooming dates were clouded dark days and others were sunny.

The individual flowers (Fig. 3) are most unusual especially with regard to the stamens. The perianth is about one-fourth inch in diameter and 6-parted. The three outer divisions are of a firmer texture with a slight greenish or purplish streak on the outer side. The three inner divisions are broader and more petal-like and of a delicate transparent whiteness. In the center is the pistil with a 3-celled superior ovary with 2 ovules in each cell, a filiform style is topped by a tufted plumose capitate stigma. The stamens are 6 with very long spreading thread-like

filaments which are about an inch in length, and elevated far beyond the cup of the perinth. The connective of the stamen is exaggerated into an irregularly rounded-petal-like expanse of delicate white tissue with two small anther-sacs in the lower outer corners of the connective. These are filled with rice-shaped pollen grains. The delicate petal-like stamens with their long exserted filaments give a filmy or feathery character to the entire inflorescence (Fig. 4). Engler and Prantl give the only illustration of the stamens that I have been able to find but their drawing is incorrect. The connective is described as quadratic and the anther sacs are shown at the upper outer corners instead of the lower corners.

How this tropical jungle plant from Central and South America came to Toledo I am unable to say. It does not seem to be known to commercial firms and so far as I know is not grown as an ornamental plant by horticulturists. It is my purpose to introduce to you therefore a plant little known in our latitude and one which is remarkable in its stamens and peculiar habits of growth. Photographs of the plants in the University green-house and my original drawings illustrate the morphological features of *Spironema fragrans* Lindl.

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